

## ABSTRACT

A tomograph which determines projection data phase range capable of back projection for each reconfigured voxel with an arbitrary value larger than  $\pi$  so that the absolute values of cone angles at the ends of this phase range is minimized, calculates an approximate straight line for a curve indicating the position of a radiation source with respect to the channel direction position of parallel beam projection data obtained by a parallel beam of a parallel shape viewed from the go-around axis direction generated from the radiation source, and based on the determined projection data range capable of back projection, three-dimension back projects the parallel beam projection data subjected to filter processing created through a filter correction to the back projection region corresponding to the region in concern along the approximate irradiation trace of the radiation beam calculated using the calculated approximate straight line, thereby suppressing generation of the distortion attributed to data discontinuity, simplifying an arcsin calculation and significantly increasing the processing speed of the tomograph.